

REMARKS

This application has been reviewed in light of the Office Action dated April 3, 2003. In view of the foregoing amendments and the following remarks, favorable reconsideration and withdrawal of the objection and rejections set forth in the Office Action are respectfully requested.

Claims 1-18 are pending. Claims 1-10 and 16-18 have been withdrawn as being drawn to non-elected inventions. Claims 11-15 have been amended. Of the claims presented for examination, Claim 11 is in independent form.

As required by the Office Action, Applicants hereby affirm the election of Group II, Species A (Claims 11-15), with traverse. In that regard, however, Applicants submit that Claim 17 reads on the elected species. Specifically, it is noted that Claim 17 depends from Claim 11 and recites subject matter consistent with Species A as defined by the Examiner. Accordingly, Applicants respectfully request that Claim 17 be grouped with Species A.

Applicants note that the Examiner has acknowledged their claim for foreign priority, and Applicants understand that the Examiner intended to acknowledge receipt of the certified copy of the priority document by checking box 13.a.1. on the Office Action Summary Sheet. However, Applicants note that that box was not checked. In addition, Applicants note that box 15 on the Summary Sheet was checked, although no claim for domestic priority was made in the subject application. Accordingly, Applicants understand that the Examiner did not intend to check box 15. Applicants understand these to be merely clerical errors, and Applicants respectfully request correct acknowledgment of the priority data in the next communication from the U.S. Patent and Trademark Office.

The Abstract was objected to on formal grounds. The Abstract has been amended accordingly, and withdrawal of this objection is therefore respectfully requested.

Claims 11-15 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite. These claims have been amended with attention to the points raised by the Examiner. The claims are believed to comply with Section 112, and withdrawal of this rejection is therefore respectfully requested.

Claims 11-13 and 15 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,872,582 (*Pan*), and Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over *Pan* in view of U.S. Patent No. 6,117,698 (*Atobe et al.*). Without conceding the propriety of these rejections, Claims 11-15 have been amended.

Independent Claim 11 is directed to a method of manufacturing a liquid discharge head, comprising the steps of forming a movable member on a device substrate by a photolithographic technique, and removing a right-angled part and an acute-angled part of an edge of the movable member.

By virtue of the method, stress concentration on the movable member can be reduced, so that the durability of the movable member can be improved and a reliable liquid discharge head with stable discharge properties can be provided.

According to Applicants' understanding, *Pan* relates to a microfluid valve for modulating fluid flow within an ink-jet printer. Although the Office Action refers to col. 5, lines 44-64 of *Pan*, Applicants understand that the Examiner was in fact referring to *Pan*'s Fig. 4 and its discussion thereof. In that regard, Applicants note that, according to *Pan*, valve member 110 is plated (deposited) on conductor layer 134 (col. 4, lines 61-64; Fig. 4b), and then second

sacrificial photoresist layer 136 and sacrificial photoresist layer 130 are removed so that valve member 110 is allowed to move free of substrate 138 (col. 4, lines 47, 48 and 64-67; Fig. 4c).

The text and figures of *Pan* clearly show that layers 136 and 130 are not part of valve member 110; rather, they are sacrificial layers formed in such a manner as to define the dimensions of valve member 110 (col. 4, lines 45, 46 and 59-61) and to be removed in the process of forming valve member 110 (col. 4, lines 47, 48 and 63-67). In contrast, according to the method of Applicants' Claim 11, a right-angled *part* and an acute-angled *part* of an edge of a *movable member* are removed.

Further, as clearly illustrated in *Pan*'s Figure 4, layer 130 is formed underneath valve 110, while layer 136 is formed opposite the free end of valve 110. Accordingly, even if it were supposed for the sake of argument that layers 136 and 130 were parts of valve 110, and that layer 136 were a right-angled part of an edge of valve 110, it would not be the case that layer 130 is an acute-angled part of that same edge of valve 110. Similarly, even if it were supposed for the sake of argument that layers 136 and 130 were parts of valve 110, and that layer 130 were an acute-angled part of an edge of valve 110, it would not be the case that layer 136 is a right-angled part of that same edge of valve 110.

Accordingly, Applicants submit that nothing in *Pan* would teach or suggest at least a method of manufacturing a liquid discharge head, comprising the steps of forming a movable member on a device substrate by a photolithographic technique, and removing a right-angled part and an acute-angled part of an edge of the movable member.

According to Applicants' understanding, *Atobe et al.* relates to a method for producing the head of an ink-jet recording apparatus including diaphragms and electrodes to

drive the diaphragms by static electricity. The Office Action (page 7) cites *Atobe et al.* as teaching “soaking the movable member 2A in an etching solution.” Applicants submit that nothing in *Atobe et al.* would teach or suggest at least a method of manufacturing a liquid discharge head, comprising the steps of forming a movable member on a device substrate by a photolithographic technique, and removing a right-angled part and an acute-angled part of an edge of the movable member.

Since neither *Pan* nor *Atobe et al.*, whether taken singly or in combination (assuming, for the sake of argument, that such combination were permissible), contain all of the elements of independent Claim 11, that claim is believed allowable over the cited art.

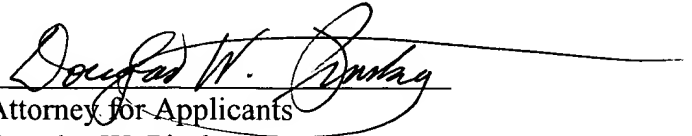
A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against independent Claim 11. That claim is therefore believed patentable over the art of record.

Claims 12-15 and 17 are each dependent from Claim 11 and are therefore believed patentable for at least the same reasons. Since each of these dependent claims is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,


Attorney for Applicants
Douglas W. Pinsky
Registration No. 46,994

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200